Introduction to National Pollutant Discharge Elimination System (NPDES) Permits

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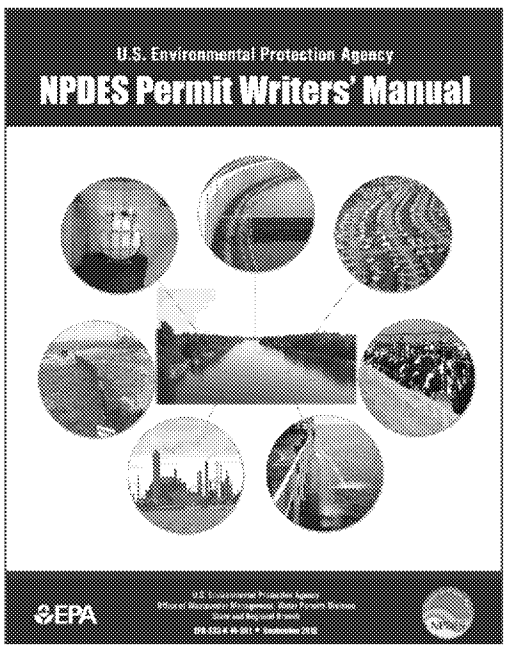
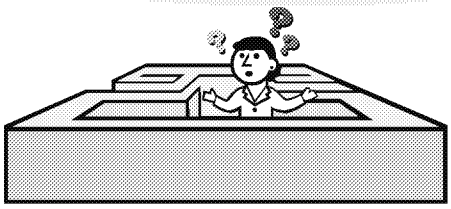
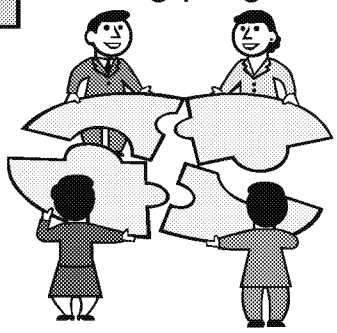
- Clean Water Act (CWA)
- National Pollutant Discharge Elimination System (NPDES)
- NPDES Application Process
- Overview of NPDES Permit Content including,
- Effluent Limitations and Monitoring Requirements
- Special and Standard Permit Conditions
- NPDES Permit Administration

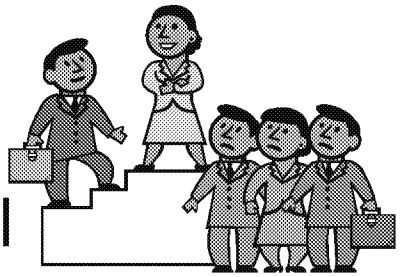




Understanding a complex program. Making decisions to develop a strong program.



Support, collaboration and cooperation are needed to build strong program.



IPDES Program Approval

33 U.S. Code Sec. 1251-1387
Commonly called the Clean Water Act (CWA)

Title I – Research and Related Programs

Ex: Section 106, grant program to support state pollution control programs.

Title II – Grants for Construction of Treatment Works.

Title III – Standards for Enforcement

Ex: 301-Unlawful to discharge of pollutants unless it complies with this and other Section. 303-Water Quality Standards. 309-Broad enforcement authority.

Title IV – Permits and Licenses

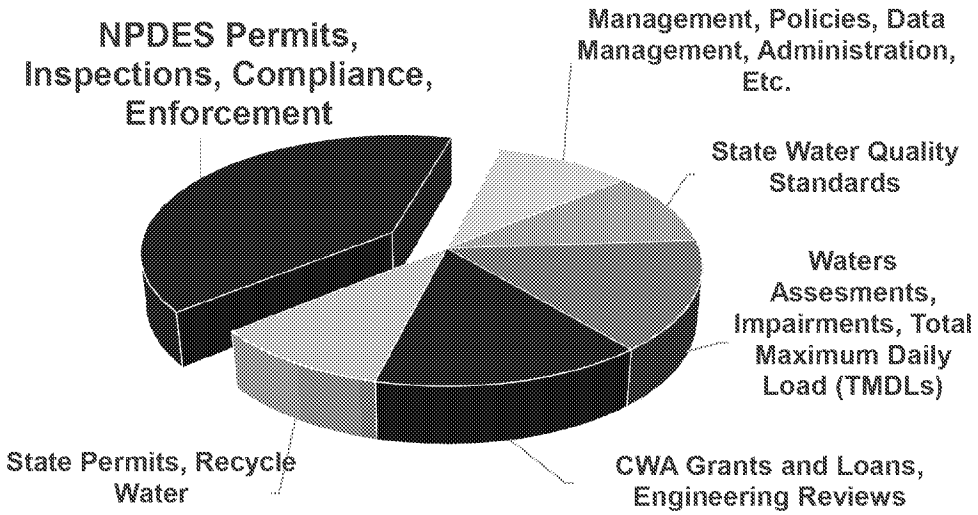
Ex. Section 402 NPDES, 405 Biosolids

Title V – General Provisions

Ex: 505-Allows citizens to take legal action against the dischargers or EPA to enforce provisions of the CWA.

Title VI – State Water Pollution Control Revolving Funds

State Water Programs

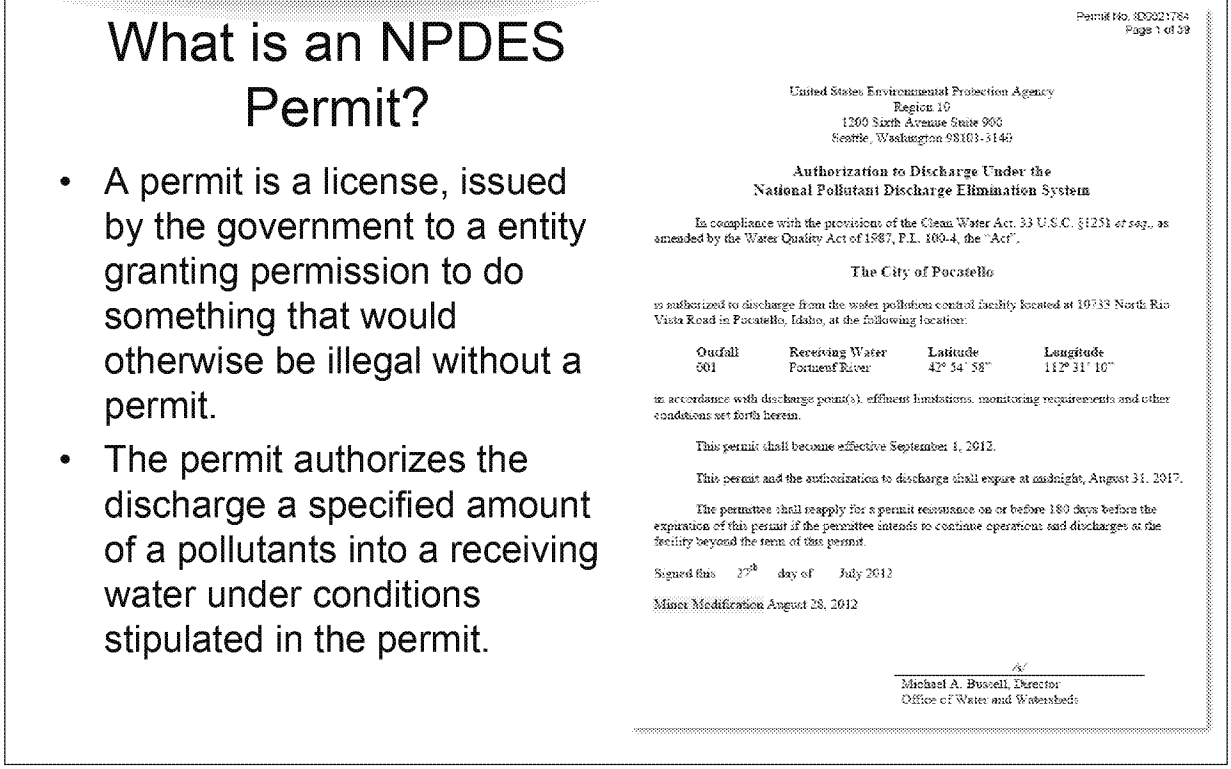


NPDES Regulatory Framework

- The CWA § 402 required EPA to develop NPDES implementing regulations.
- Federal NPDES regulations – 40 CFR Part 122 contains 4 subparts:
  - Subpart A: Definitions and General Program Requirements
  - Subpart B: Permit Application and Special Conditions
  - Subpart C: Permit Conditions
  - Subpart D: Transfer, Modification, Revocation and Reissuance.
- Many States adopt the federal regulations by reference and implement the provisions as EPA does in permitting.

What is an NPDES Permit?

- A permit is a license, issued by the government to a entity granting permission to do something that would otherwise be illegal without a permit.
- The permit authorizes the discharge a specified amount of a pollutants into a receiving water under conditions stipulated in the permit.



Permit No. ID0021784
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United States Environmental Protection Agency
Region 10
1200 Sixth Avenue Suite 900
Seattle, Washington 98101-3140

Authorization to Discharge Under the National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et seq.*, as amended by the Water Quality Act of 1987, P.L. 100-4, the "Act",

The City of Pocatello

is authorized to discharge from the water pollution control facility located at 19733 North Rio Vista Road in Pocatello, Idaho, at the following location:

Outfall	Receiving Water	Latitude	Longitude
001	Portneuf River	42° 54' 58"	112° 31' 10"

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective September 1, 2012.

This permit and the authorization to discharge shall expire at midnight, August 31, 2017.

The permittee shall reapply for a permit reissuance on or before 180 days before the expiration of this permit if the permittee intends to continue operations and discharges at the facility beyond the term of this permit.

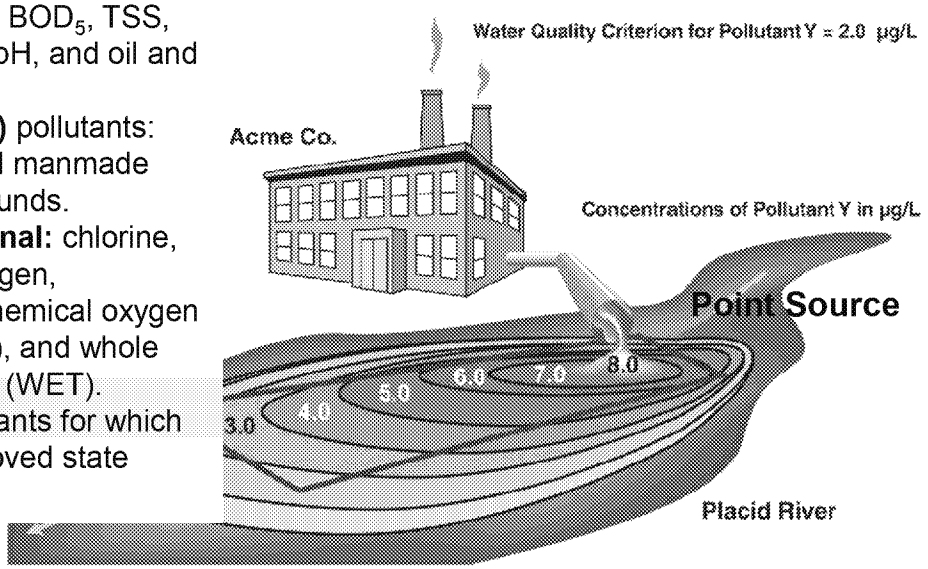
Signed this 27th day of July 2012

Minor Modification August 28, 2012

/s/
Michael A. Bussell, Director
Office of Water and Watersheds

What is the discharge of pollutants?

Conventional: BOD_5, TSS, fecal coliform, pH, and oil and grease.
Toxic (priority) pollutants: 126 metals and manmade organic compounds.
Nonconventional: chlorine, ammonia, nitrogen, phosphorus, chemical oxygen demand (COD), and whole effluent toxicity (WET).
Others: pollutants for which there are approved state standard.

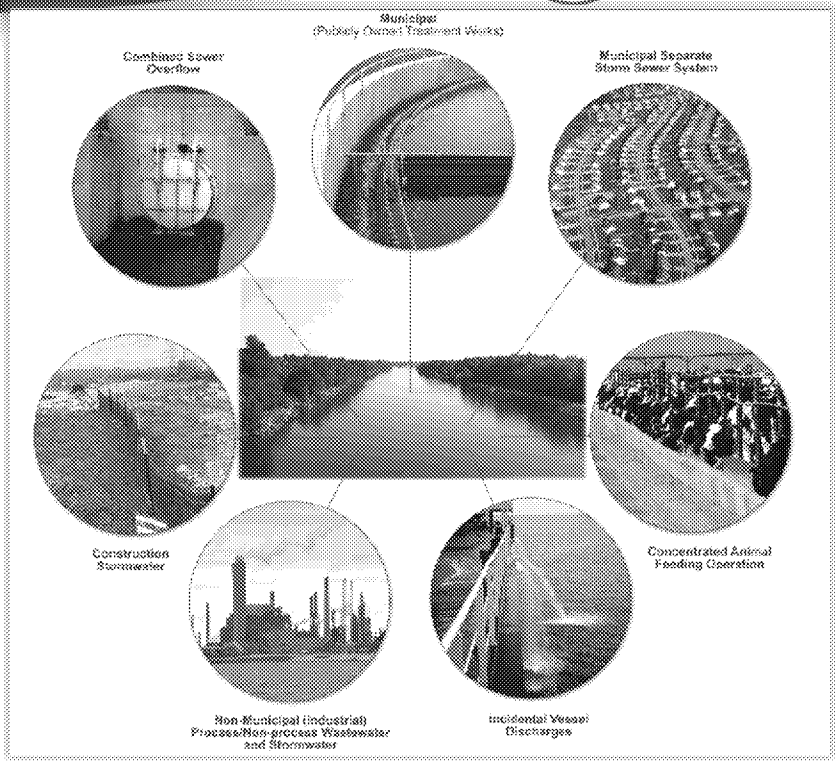


Permit Types

- –Individual
- –General

Sectors

- –Municipal
- –Industrial
- –Stormwater
  - MS4
  - Industrial
  - Construction
- –Other Sectors



Major Steps to Develop and Issue NPDES Permits

Application Process

- Receive application, 180 days before discharge.
- Review application for completeness and accuracy.

Gather Information

- Application data
- Discharge monitoring report data, submittals, compliance.
- Receiving water quality and flow data

TBELs

- Use application and other data to determine the applicability of Technology-based limits or develop limits based on BPJ.

Major Steps for Individual Permit - 2

WQBELs

- Determine applicable water quality criteria at point of discharge.
- Consider authorization of a mixing zone.

Evaluate Limits

- Apply anti-backsliding and antidegradation requirements.
- Determine final effluent limits.

Monitoring

- Consider guidelines for monitoring.
- Develop monitoring and reporting requirements.

Special Conditions

- Evaluate the need for additional monitoring or studies.
- Best Management Practices (BMPs)
- Compliance Schedules

Major Steps for Individual Permit - 3

Standard Conditions

- 40 Part 122.41(a through n) standard conditions must be include in all NPDES permits (e.g. duties to comply, reapply and mitigate).

Fact Sheet

- Prepare fact sheet and supporting documentation
- Document all permit decisions and derivation of effluent limitations

Public Notice

- Provide notice in a publication with sufficiently wide circulation.
- Inform the public about permit and accept comment..

Admin. Record

- Permit application and supporting data
- Draft permit and fact sheet, meeting notes and correspondence
- Correspondence with applicant or regulatory personnel

Major Steps for Individual Permit - 4

Public Comment

- Elicit comments from individuals or agencies.
- The permitting agency must respond to all significant comments.

Hearings

- Any interested party may request a hearing.
- Public notice of a hearing must be at least 30-days before the hearing date.

Issuance

- Final NDPES permit generally become effective 30-days after issuance and on the 1st day of a month.

Post Issuance

- Add permit limits, monitoring/reporting requirements into permits database
- Implement/administer permits consistent with state and federal requirements.

Other Actions Taken on Final Permit

Appeals

- The Permittee or interested party can contest the permit.
- State administrative appeal procedures designed to resolve permit challenges.

Modifi-cations

- Minor – typos, more frequent monitoring, transfer, etc.
- Major – Except where permittee agrees, mods limits to causes in 122.61(a) and (b). Requires public notice and comment period.

Transfer

- Transfer by modification or revocation.
- Automatic transfer ownership if notified 30-days in advance.

Permit Admin

- Monitoring compliance with all permit conditions.
- Enforcement response for non-compliance.

NPDES Permit Consist of Five Sections

- Cover Page – Name, Location, Statement Authorizing Discharge and issuance, effective and expiration dates.
- Effluent Limitations – Primary mechanism for controlling discharges.
- Monitoring and Reporting Conditions – used to characterize discharge and determine compliance with permit conditions.
- Special Conditions – may supplement numeric effluent limits.
- Standard Conditions – Pre-established conditions that delineate the legal, administrative and procedural requirements.

Effluent Limitations

Technology- and Water Quality-based Effluent Limitations

	Technology-based Effluent Limitations (TBELs)	Water Quality-based Effluent Limitations (WQBELs)
Goal or Policy:	• Zero Discharge of Pollutants	• Fishable and Swimmable Waters • No Toxics in Toxic Amounts
Standards:	• Technology	• Water Quality
NPDES Regulations:	• 40 CFR 122.44(a), (e) • 40 CFR 125.3	• 40 CFR 122.44(d)

Develop **TBELs** (derived from technology standards) for all applicable pollutants of concern. Develop **WQBELs** where TBELs are not adequate to meet water quality standards in the receiving water.

Technology-based Effluent Limits

- Goals
  - Establish minimum control levels
  - Provide equity to categorical dischargers
- Industrial dischargers
  - National effluent limitation guidelines (ELGs)
  - Best professional judgment (BPJ)
- Municipal dischargers (POTWs)
  - Secondary treatment standards (BOD, TSS, pH, % removal BOD, TSS)
  - Equivalent to secondary treatment (lagoons or less concentrated influent)

Water Quality-based Effluent Limits

- Based on State Water Quality Standards (WQS)
  - Reviewed every 3 yrs. Changes must be approved by EPA.
- If there is a reasonable potential for the discharge to cause or contribute to excursions above any State WQS, WQ-based effluents must be set.
- Wasteload allocations
  - from WQS criteria based on simple mixing model
  - TMDLs (if receiving waters exceed WQ criterion)
- WQBELs are calculated using statistical methodology and assumptions the variability of pollutant concentrations in the effluent
- WQBELs may also be established for Whole Effluent Toxicity (WET) which is biological monitoring.

Water Quality Standard Components

- Beneficial/Designated Uses
  - Aquatic Life
  - Recreation
  - Water Supply
- Water quality criteria
  - Numeric Criteria e.g. pollutant conc.
  - Narrative e.g. free from toxic substances
- Antidegradation policy
  - Protects existing uses
- Additional provisions for
  - Authorization of Mixing Zones
  - Variances from WQS
  - Authorization of Compliance Schedules

Monitoring requirement are used to:

Evaluate permit compliance, as a basis for enforcement actions, to assess treatment efficiency, and to characterize the effluent and the receiving water.

Table 1. Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations				Monitoring Requirements		
	Units	Average Monthly	Average Weekly	Maximum Daily	Sample Location	Sample Frequency	Sample Type
Numeric Effluent Limits							
Biochemical Oxygen Demand (BOD5)	mg/L	**30**	**45**	—	Influent & Effluent	3/week	24-hour composite
	lb/day	**3,000**	**4,500**	—			
	% removal	**85% min.**	—	—	% removal	1/month	calculation
Total Suspended Solids (TSS) *TMDL-based limit*	mg/L	**30**	**45**	—	Influent & Effluent	3/week	24-hour composite
	lb/day	**3,000**	**4,500**	—			
	% removal	**85% min.**	—	—	% removal	1/month	calculation
E. Coli Bacteria[1,2]	#/100 ml or MPN/100 ml	**126** (Geometric Mean)	—	**576** (Instantaneous Maximum)	Effluent	3/week	grab
pH	s.u.	**Daily minimum 6.5** **Daily maximum 9.0**			Effluent	5/week or continuous	Grab or measurement

Type of Monitoring

- Self-monitoring – Discharge Monitoring Reports (DMRs)
  - Internal streams
  - Final Effluent
  - Ambient (for background data and/or to demonstrate compliance with WQS)
  - Sediment
  - Biological Monitoring (Whole Effluent Toxicity)
- Compliance monitoring (by inspectors)
- Monitoring location must be accessible
- Samples must be representative of regular operation

Monitoring Requirements in Permits

- Frequency depends on many factors including
  - Effluent variability
  - Facility size and design
  - Type of treatment
  - Location of discharge
  - Frequency of discharge
  - Compliance history
  - Nature of pollutants
- Sample type are variable as well.
  - Grab
  - Continuous
  - Composite, time proportional or flow proportional

Monitoring - Analytical Methods

- 40 CFR Part 136, Appendix A
  - Standard Methods for the Analysis of Water & Wastewater
  - Methods for the Chemical Analysis of Water and Wastes
  - Test Methods: Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater
- Alternative Testing Procedures (ATP)

Permit Reporting Requirements

- Monitoring Data
  - Discharge Monitoring Report (DMR)
  - Annual Reports
- Bypasses or Upsets
- Special plans or reports
  - compliance schedule progress reports
  - quality assurance plans
  - pollution prevention plans
  - Best Management Practices (BMP)

Recordkeeping

- Retention time
  - Permit records must be retained for at least 3 years [40 CFR § 122.41(j)].
  - 5 years for sewage sludge
- Monitoring records
- Location

Special Conditions

- Special studies
  - Treatability studies
  - Mixing zone studies
  - Bioconcentration studies
- Pollution Prevention (P2)
- Best Management Practices (BMPs)
- Compliance Schedules
- Variances

Special Conditions - Best Management Practices

- Schedule of activities
- Prohibitions of practices
- Maintenance procedures
- Treatment options
- Operating procedures & practices
  - control plant site runoff
  - spillage or leaks
  - sludge or waste disposal
  - drainage from raw material storage areas

Special Conditions - Compliance Schedules

- Programs
  - Pretreatment
  - Sewage sludge
  - Combined Sewer Overflow (CSO)
  - Stormwater
- New discharger/New source
- New/revised water quality standards
- Special permit conditions
  - BMP plan
  - Quality Assurance Plan (QAP)

Special Conditions - Variances

- Variance for technology-based limits
  - Economic
  - Localized environmental factors
  - Marine discharge
  - Fundamentally different factors
  - Thermal discharge
  - Net credits (effluent trading)
- Variances to water quality-based limits
  - Site-specific water quality criteria
  - Designated use reclassification
  - Water quality standard

Additional Information

- EPA Region 10 – Idaho Permits
  - http://yosemite.epa.gov/R10/WATER.NSF/NPDES+Permits/CurrentPermits
- EPA NPDES Permits
  - http://water.epa.gov/polwaste/npdes/
- EPA Permit Writers' Manual
  - http://www.epa.gov/npdes/pubs/pwm_2010.pdf

Questions or Comments

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